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and moistened by the hot vapor from the fumaroli or smoke holes of semi-extinct volcanoes.

The story of our Portuguese plant points to the value and necessity of that interchange of ideas between the bryologists of the two continents which the "Bryologist" under Mrs. Smith's able management has done so much to promote.

If Dr. Best's identification of *C. Whippleanum* and *C. leuconeurum* with one another and with our Portuguese plant stands, as I certainly think will prove to be the case, the synonymy of the plant would seem to be as follows: that of the American plants has been taken from Dr. Best's Revision of the *Claopodiums* (loc. cit.).

Claopodium Whippleanum (Sull.) Ren. & Card. Musc. Am. sept. 1893.

Hypnum Whippleanum Sull. Pac. R. R. Rep. 4: 190. 1856.

Thuidium leuconeurum Sull. & Lesq. in Sull. Icon. Musc. Suppl. 104. 1874.

Thuidium Solmsii Milde in herb. (18—.)

Leskea? algarvica Sch. Syn. 597. 1876. (Ed. 2.)

Hypnum leuconeurum L. & J. Mosses of N. America. 328. 1884.

Thuidium leskeoides Kindb. Bull. Torrey Club 17: 277. 1890.

Claopodium leuconeurum Ren. & Card. Musc. Am. sept. 50. 1893.

NOTES ON LEPIDOZIA SETACEA

E. J. HILL

In the summer of 1907 I collected this scale moss in Bergen swamp, Genesee County, N. Y. A bed of *Sphagnum* was seen to be mixed with hepatics, and a packet of it was taken. When examined some time afterward three were found associated with the *Sphagnum acutifolium*, which formed the bulk of the packet. They were *Mylia anomala* (Hook.) S. F. Gray, *Lepidozia setacea* (Web.) Mitt. and a *Cephalozia* which in its leaf characters answered very well to *C. connivens* (Dicks.) Lindb., all of which are known to grow in *Sphagnum*. As all were without fruit the determination had to be based on other characters. *L. setacea* being new to me, and either rare or seldom detected, and liable to be confused with the more common *L. sylvatica* Evans, some was sent to Dr. Evans, who confirmed the identification. Thus another station for this species is added to the few that are definitely known in our flora. It has five in New England: Bethany, Conn.; Woods Holl, Mass.; Lonesome Lake in the Franconia Mountains, N. H.; Waterville, N. H.; and Mt. Desert, Me.

The flagella which spring from the axils of the ventral leaves of *L. setacea* were well supplied with rhizoids. These have a globose enlargement at the distal end by means of which it clings to the mosses among which it grows. They sometimes adhere so firmly that the fragile stems are broken in efforts to detach them. (See Warnstorf, Kryptogamenfl. der Mark Brandenburg 1: 257. 1902.) I found similar spheroidal expansions of the ends of some of the rhizoids of the *Cephalozia*. They were not as abundant as on the stems of the *Lepidozia*, but to all appearance serving the same purpose. Contact with

some resisting medium is generally considered to be the cause of this enlargement, as seen in the disks at the ends of tendrils in such vines as *Ampelopsis*.

If we regard rhizoids as organs for absorption as well as for holding a plant in place, such expansions fixed to the cellular walls of mosses ought to help materially in taking up the moisture with which swamp mosses, especially *Sphagnum*, are so well supplied. The water freely drawn up from below by capillarity, due to the peculiar structure of the cells of *Sphagnum* and the arrangement of its leaves and pendent branches, as obtained from rains and dews and held in storage, would thus be at the more ready disposal of the scale moss associated with it. Thus the rhizoid might prove to be of greater advantage as an organ for absorption than for mechanical support. It would be particularly serviceable to hepatics growing under the conditions of those found in Bergen Swamp. They were in the open and comparatively treeless portion of the swamp, much exposed to sun and wind.

The *Sphagnum* occurs in beds and hummocks, often but a few square feet in area, the central parts raised a foot or two above the water table. They make the beginning of a high moor formation. The surface of such beds is liable to considerable dryness in the hot days of midsummer when the water of the swamp is low or has wholly disappeared above ground. It becomes a trying season for such delicate structures as scale mosses, but the closely fitting enlarged attachment may help in making a more effective use of what water may be present in the bed of *Sphagnum*. As the *Lepidozia* was found in a small oval or bossy bed of this moss, the surface considerably desiccated in the August days, it seemed to show a fitting adaptation to the environment.

CHICAGO, ILL.

ADDITIONS TO THE LICHEN FLORA OF SOUTHERN CALIFORNIA NO. 7

H. E. HASSE M. D.

***Lecidea bullata* HASSE N. SP.**

Thallus of a few small scattered ash colored squamules or absent. Apothecia substipitate, scattered or four to eight grouped, from 0.5 mm. to 1.75 mm. wide, the separate ones being the larger; disk dull black, faintly papillate, mostly slightly concave, the larger slightly convex; margin thin, gray, or blackish gray, entire or more or less sinuose, at times deeply, almost parting the disk into several lobes; epithecium subcontinuous, bluish black to almost black, gradually paling downward; thecium colorless (lower part), about 100 μ high; paraphyses separate, stout, septate, branched, the rounded top clavate-thickened and not or but slightly colored; hypothecium pallid brownish gray; asci 88 μ long, composed of an upper oblong-ovoid bullate expansion, 28 μ to 36 μ long, 12 μ to 15 μ thick, contracting to a peduncle 60 μ to 68 μ long and 8 μ to 9 μ thick; spores ovoid and oblong-ovoid, 8 μ to 12 μ long, 6 μ to 9 μ thick, simple, colorless; hymenium not horny, with iodine staining blue to sordid greenish blue, the hypothecium greenish-